

NOTES ON MESEMBRYANTHEMUM AND ALLIED GENERA

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Sphalmanthus acocksii L. Bol. sp. nov. (*Eusphalmanthi*).—Planta 1 visa, fera, inter frutices subscandens; radix lignose tuberosa, 7 cm. longa, ad 1 cm. diam.; partes herbaceae sat conspicue papillatae, papillis rotundatis; rami primarii lignescentes, sat rigidi, pallidi, ad 26 cm. longi, internodiis 1—4.5 cm. longis; ramuli ascendentes vel patentes; folia ascendentia vel patentia, omnia opposita, supra plana, linearia vel anguste lineari-lanceolata, e prope medium superne angustata, obtusa vel subacuta, dorso convexo, glauce viridia, 1.5—3 cm. longa, 2—4 mm. lata; flores 1—3-nati, vel demum irregulariter 2-ternati; pedunculi ultimi 1—11 mm. longi; receptaculum globose obconicum, 4—5 mm. longum, 6—7 mm. diam., papillis elongatis acutis; calycis tubus ca. 2 mm. longus, segmentis 5, e parum supra basim superne angustatis, obtusis vel acutis, 2 extimis cum interiore 1 cm., 2 intimis 5—7 mm., longis, basi 2—4 mm. latis; corolla rosea, tubo ca. 2 mm. longa, segmentis 3-seriatis, obtusis, ad 1.1 cm. longis, ad 1 mm. latis; staminodia ad 8 mm. longa; stamina ca. 8-seriata, ad 6 mm. longa, antheris pollineque luteis; ovarium supra gradatim leviterque elevatum, fere planum, lobis obtuse compressis; stigmata 5, superne non angustata, vix ad 1.5 mm. longa.

CAPE PROVINCE: in dit. Calvinia, "44 miles W.S.W. of Calvinia, Lokenburg. Occasional in bushes in Heiveld of sandy slopes. Pink-flowered, trailing." Sept. 25, 1954, *J. P. H. Acocks* 17724.

Described from a dried plant and several detached branches and flowering branchlets, with the addition of notes made on living leaves and dissected flowers.

Sphalmanthus gydouwensis L. Bol. sp. nov. (*Eusphalmanthi*).—Radix integer non visa, sed subtuberosa, ut videtur, e reliquiis basi ramorum primariorum; rami decumbentes sublignescentes, in genere inter gracillimos visos, 1—1.5 mm. diam., internodiis in feris 1—3 cm. longis; partes herbaceae, praecipue in feris, conspicue papillatae, papillis rotundis; folia omnia opposita, ascendentia, supra visa linearia-lanceolata plana, ex infra medium superne angustata, apice vero obtuso vel in cultis interdum acuto, 2—4.3 cm. longa, vagina ad 1 mm. longa, medio 3—7 mm. lata; flores solitarii vel 3-nati, pedunculis lateralibus

bracteatis, vel irregulariter biternati; pedunculi 3—20 mm. longi, cum receptaculo dense papillati, papillis interdum elongatis, obtusis vel acutis; receptaculum globose obconicum, demum subglobosum, 6—7 mm. longum, ad 8 mm. diam.; calycis tubus 1·5—2 mm. longus, segmentis 5, e prope basim superne angustatis, acutis vel obtusis, 6—8 mm., vel 8—10 mm., vel rarius ad 13 mm., longis, in flore unico segmento intimo extimis longiore, basi 3—6 mm. latis; corollae tubus ad 1·25 mm. longus, segmentis ca. 4-seriatis, emarginatis vel obtusis vel subacutis, dimidio inferiore citrino, superiore albo, ad 1·3 cm., vel cultis ad 2 cm., longis, 0·5—1 mm. latis; staminodia subnulla; filamenta ca. 8-seriata, pallide citrina, extima ad 1 cm. longa; ovarium inconspicue angulatum, ad 0·75 mm. elevatum; stigmata 5, superne non angustata, ad 2 mm. longa.

CAPE PROVINCE: in dit. Ceres; Gydouw, Oct. 1939, *C. L. Leipoldt* 4425.

Described from wild and cultivated plants which flowered in my garden in Nov. 1940.

In addition to the type of *Sphalmanthus micans* L. Bol. (ante p. 43) the following collections, all without fruit, are represented in the Bolus Herbarium: Calvinia, *L. Starke*. N.B.G. 1704/28. Fl. Jul. 1929. Nieuwoudtville, *P. Ross Frames*. Fl. Aug. 1929. In dry sand, 3—4 miles from Nieuwoudtville on the road to Loeriesfontein, *L. Bolus*. Bolus Herb. 19327. Fl. Sept. 1930. (Also seen on low hills near the village and on the karroid part about 8 miles distant.)

Two collections made in Namaqualand, which seem to be closely allied to *S. micans*, are also represented in the Bolus Herbarium. The earlier one, known only from dried material, was made by *Pearson* (Percy Sladen Memorial Expedition 6414) in Sept. 1911, at Bailey's Vlake in the Khamiesberg area, "in damp ground, only flowers and tops of leaves above ground." This has the stem 2·5 cm., the short branches about 6 mm., and the slender tap-root up to 3 mm., in diameter. The later collection was made by *E. Esterhuysen* (1332A) in Nov. 1939, between Garies and Leliefontein at Wolfhok, "in flat grassy places." This consists of two specimens in very nearly mature fruit, the larger one having the upper portion of the thick main stem 3·5 cm. in diameter, and three erect woody branches (two of them branched) 2·5—5 cm. long below the current year's growth, which is up to 2·8 cm. long (including the capsule). The capsule is almost entirely enclosed in the calyx (which seems to be accrescent), the lower part being obconic, 5 mm., and the upper part 1·2 cm., long, this being the largest capsule hitherto noted in the genus. After being several hours in water the five valves were finally completely reflexed, with their sides also reflexed, the expanding keels parallel, reaching to about one-third of the valve, and the valve-wings reaching the apex of the keels.

It is hoped that these notes may interest collectors and may lead to further collections being made in this area for a closer study from living material of these insufficiently known plants.

Conophytum clavatum L. Bol. sp. nov. (*Wettsteiniana*).—Planta 1 visa, gracilis, 1.6 cm. alta (sine floribus); vaginae persistentes inferne tenuiter pergamentaceae, politae brunneae, superne subpapyraceae rugosae, atrate brunneae, novellae supra pallidae, sparse brunneo punctatae; corpuscula clavata viridia, inter minima in genere, ad 6 mm. longa, 3.5 mm. diam., ore 1.5 mm. longo, apice rotundo convexulo punctato, punctis leviter elevatis, fere quasi tuberculis, politis, saturatiore viridibus, sparsis vel interdum approximatis, praecipue circum os marginesque; pedunculus 2 mm. longus, parum supra basim bracteatus; bractee subtruncatae, 1.5 mm. longae, vagina lobos aequante, sinu rotundo; receptaculum ad 1 mm. longum diametroque; calyx ad 5.5 mm. longus, tubo membranaceo, bene exserto, segmentis 4, medio subherbaceo, latissime marginatis, 1 mm. longis; corolla rosea, ad 1.8 cm. longa, tubo superne leviter ampliato, ad 1.2 cm. longo, segmentis 3-seriatis, obtusis vel subemarginatis, ad 1 mm. latis; filamenta e parum supra basim adnata, ca. ad 8-seriata, rubra, infima inter longissima, ad 8 mm. longa, antheris pollineque luteis; discus crenulatus inconspicuus; ovarium leviter elevatum; stylus 9 mm. longus; stigmata 4, ca. 0.75 mm. longa.

CAPE PROVINCE: Little Namaqualand; "Richtersveld, 10 miles S.W. of Brakfontein, Nov. 1962, R. C. Littlewood. Karoo Garden 1327/62. Fl. Feb. 1964. "This small species was found growing in crevices of vertical rock-splits on top of a high koppie." (C. Littlewood).

Conophytum meridianum L. Bol. var. **pulverulentum** L. Bol. var. nov.—Plantae 2 visae; vaginae persistentes superne asperae; corpuscula inferne minute papillata, supra minute pulverulenta, ore ciliolato, ad 2.5 mm. longo; bractee herbaceae; flores 6 dissecti; corollae tubus luteus, segmentis saepe emarginatis, fere ad 2 mm. lata; staminodia exteriora inferne lutea, superne alba; stamina in flore unico 6-seriata, antheris luteis, supremis apicem tubi fere attingentibus; stylus ab ovario non bene distinctis, cum stigmatibus 1.5—2.5 mm. longus, stigmatibus stylum subaequantibus.

CAPE PROVINCE: "on the farm 'Boonstevlei,' about 10 miles N. of Kliprand," Oct. 1963, P. A. B. van Breda 2018/63. Fl. Jan.—Feb. 1964.

In the description of the type I have written "stylus nullus," which I now think is incorrect. In the first two flowers dissected of this variety the style was slightly grooved and also appeared to be the lower part of the stigmas still adhering. In the later flowers the stigmas, sometimes by the deposit of pollen, could be distinguished clearly from the style, but it was not possible to distinguish the style from the ovary. The only capsule seen, a very old one, is elevated to 1.25 mm. in the middle.

Psilocaulon liebenbergii L. Bol. sp. nov.—Ramus 1 visus, e prope terram, ut videtur, scissus, erectus glaber, 35 cm. altus, basi 5 mm. diam., e basi sat

copiose ramosus; rami secundarii ad 33 cm. longi, nodis vix constrictis, internodiis saepius 2—2.5 cm. longis et 3 mm. diam., junioribus asperulis ob capillas patentes minutissimas; ramuli oppositi vel alterne evoluti, ultimi floriferi saepius 3—6.5 cm. longi, 4—8-fl.; folia marcescentia tantum visa, apiculata ad 1.9 cm. longa, ca. ad 1.5 mm. diam.; pedunculi 2—5 mm. longi; receptaculum subclavatum vel subglobosum, 2—3 mm. longum, ad 3 mm. diam.; calycis tubus 0.75 mm. longus, sinibus macula rubra parva ornatis, segmentis 5, marcescentibus tantum visis, exterioribus acutis, conspicue aristate apiculatis, 3—4 mm. longis, basi 1—2.5 mm. latis; petala laxa 3—4-seriata, basi brevissime connata, inferne non, vel leviter, angustata, obtusa albida, 4—8 mm. longa, ad 1.25 mm. lata; staminodia subnulla; filamenta ca. 5-seriata, alba, 3—6 mm. longa, antheris pollineque pallidissime luteis; ovarii lobi leviter compressi, ad 0.75 mm. elevati; stigmata 5, gracillima, 3 mm. longa.

CAPE PROVINCE: in dit. Alexandria; Addo Elephant National Park, Jan. 1964, C. L. L. Liebenberg 7390. "Flowers with a purplish tinge." (Liebenberg.)

Drosanthemum nordenstamii L. Bol. sp. nov. (*Hispicaulia*—*Defecta*).—Primum humile caespitosum, deinde ramos decumbentes vel prostratos, ad 20 cm. longos, basi ad 2 mm. diam., emittens, internodiis 5—20 mm. longis, brunneis, sat dense hispidis, setis patentibus, longe acuminatis; ramuli floriferi erecti 2-foliati; folia ascendentia vel patentia, supra plana vel convexula, obtusa, dorso rotundo, lat. visa obtusa vel subtruncata, inferne interdum leviter angustata, nitente papillosa, papillis rotundis, saepius 1—1.5 cm. longa, medio 2.5 mm. lata, ad 3 mm. diam., vagina ca. 0.75 mm. longa; flores meridiani; pedunculi hispidi, 1—3 cm. longi; receptaculum obconicum, prope apicem leviter constrictum, ad 3 mm. longum, 4 mm., vel demum ad 5 mm., diam.; sepala 5, subaequilonga, omnia $\pm$ marginata, ad 4 mm., vel in flore altero ad 5 mm., longa, basi 1.5—2 mm. lata; petala ca. 2-seriata, e prope medium inferne angustata, obtusa, parum infra medium alba, superne pulchre rosea (pale rose pink), ad 1.3 cm. longa, 1.5 mm., vel fere ad 2 mm., lata; staminodia nulla; filamenta sat pauca, ca. 5-seriata, laxa conferta, mox erecta, ad 4 mm. longa, exteriora epapillata vel obscure papillata, pallide rosea, intima prope basim dense papillata; glandulae subapproximatae; ovarii lobi subobtusely compressi, fere glandulas attingentes easque leviter excedentes, demum vix ad 0.5 mm. elevati; stigmata 5, gracilia, alba vel superne rosea, ad 5 mm. longa cum cauda 1.25 mm. longa; capsula expansa anni prioris 9 mm. diam., seminibus breviter piriformibus, levissimis.

SOUTH WEST AFRICA: "10 miles S. of Witputz," Oct. 1962, B. Nordenstam 1159. N.B.G. 786/62. Fl. Nov. 1962, Feb. et Oct. 1963.

Trichodiadema gracile L. Bol. var. **piliferum** L. Bol. var. nov. (*Stricti*).—A forma typica pedunculo cum receptaculo pilifero praecipue differt.

Plantae 2 visae, ferae, 6—7 cm. altae; radix lignose tuberosa, 3·5—7 cm. longa, ad 2 cm. diam.; rami primarii ad 3 mm. diam., secundarii graciles, erecti vel ascendentes vel culti elongati, patentes vel decumbentes, internodiis saepius 1—2 cm. longis vel in ramulis multo brevioribus, 1—1·5 mm. diam., junioribus breviter piliferis, pilis patentibus; folia ascendentia vel fere erecta, supra et lat. visa superne gradatim angustata, dorso rotundo, papillis rotundis vel sub-ovalibus, esetiferis vel prope apicem setiferis, setis in setas apicales, strictas vel laxas, inconspicuas, transeuntibus, 1—1·5 cm. longa, prope medium 1—2 mm. lata crassaque; pedunculi graciles, sat dense piliferi, pilis ad 1 mm. longis vel ultra, 1·5—3 cm. longi; receptaculum globose obconicum, papillis conspicue piliferis, pilis ad 2 mm. longis, 4 mm. longum, 5 mm. diam.; sepala 5, acuta, 3·5—4 mm. longa, basi 2—3 mm. lata, vel 5—7 mm. longa, basi ad 4 mm. lata; petala 2-seriata, e supra medium inferne angustata, obtusa vel subacuta, pallida, inferne roseo vittata, 8—10 mm. longa, ad 1·5 mm. lata; staminodia nulla; filamenta 5-seriata, conice collecta, alba, prope apicem rosea, ad 4 mm. longa, exteriora inferne ciliate papillata, interiora prope medium papillata; glandulae conspicuae approximatae; ovarii lobi compressi distantes, demum ad 1·25 mm. elevati; stigmata 5, anguste subulata, breviter caudata, ad 1·5 mm. longa.

CAPE PROVINCE: in dit. Swellendam; "on stony koppie between cornfields," Aug. 1928, *Emily Ferguson*. Bolus Herb. 21440. Fl. hort. L. Bolus Aug. 1931. Typus. In dit. Riversdale: "Hills near Riversdale," Aug. 1923, *H. M. Bartlett* (*Muir* 2578).

Trichodiadema gracile L. Bol. var. **setiferum** L. Bol. var. nov.—A forma typica pedunculo cum receptaculo pilifero et papillis foliorum setiferis differt.

Locus ignotus: comm. *Ridley*. NBG. 402/14. Fl. Apr. 1926.

The type-material of this variety consists of three branches up to 4 cm. long, taken from the tuberous rootstock when it flowered in 1926, and two drawings made by Miss Carter of the plant with the upper part of the tuber above the ground, 7 cm. long and the flowers 2·8 cm. in diameter. Enlarged drawings were also made of the floral parts. The second drawing represents the plant in full vegetative growth. This was one of the very early succulents sent to Kirstenbosch, and it was still flourishing in 1933 when another flower as large as the earlier ones was preserved on a gummed card. A second collection of this variety has not yet been recorded.

Trichodiadema concinnum L. Bol. sp. nov. (*Radiantia-Barbata*).—Plantae plures visae, ferae 3·5—10 cm., cultae ad 15 cm., altae; radix lignose tuberosa, cum aetate ad 6·5 cm. longa, ramosa, ramis 4—13 mm. diam.; caulis 7 mm. diam. vel ultra in plantis senectis, e basi ramosus; rami primarii erecti vel ascendentes, teretes, basi 3 mm., superne 1—1·5 mm., diam., internodiis

levibus, ad 1 cm. longis; ramuli interdum flexuosi, internodiis junioribus interdum breviter piliferis; folia ascendentia vel patentia, fere teretia, apicem versus leviter angustata, viridia, inconspicue papillata, papillis rotundis vel ovalibus, seta obscura nunc prope basim, nunc prope apicem, interdum onustis, 5—9 mm. longa, 1—2 mm. diam., setis apicalibus ad 8 visis, gracillimis pallidis, ad 2 mm. longis; receptaculum obconicum, ad 3 mm. longum, ad 4 mm. diam., cum pedunculo ad 1.5 cm. longo molliter setosum, setis ascendentibus vel erectis, pellucidis, ad 1 mm. vel parum ultra longis; sepala 5, conspicue barbata, 2—5 mm., vel in flore altero 3—6 mm., longa, basi 1.5—2 mm. lata; petala 28—32, exteriora 1—2-seriata, subaequilonga, e supra medium inferne angustata, obtusa, roseo purpurea, ad 1.1 cm. longa, ad 1.5 mm. lata, interiora pauca; staminodia alba, ad stamina conice collecta appressa eaque leviter excedentia; filamenta ca. 3-seriata, alba, interiora medio papillata, antheris pollineque luteis; glandulae sat distantes, obscure crenulatae, dimidium altitudinis ovarii attingentes; ovarii lobi distantes, obtuse compressi, basim glandularum attingentes, ad 0.75 mm. elevati; stigmata 5, dimidio inferiore anguste subulato, superiore caudato, fere 2 mm. longa.

CAPE PROVINCE: in dit. Alexandria; Bushman's River, Dec. 1950, *H. Hall*. N.B.G. 1559/50. Fl. Maio 1951. Typus. Addo Elephant National Park, Olifantstraat, alt. 1000 ft., Sept. 1953, *Miss S. M. Johnson* 755. Alexandria, *Pillans* 2238. Hillary, prope Sandflats, Aug. 1912, *J. Burtt-Davy* 14286. "Common, used by natives to ferment a Kaffir beer and called T'Kerriemoor." (*Burtt-Davy*.)

This species is closely related to the collections made near Port Elizabeth which have been identified as *T. bulbosum* (Haw.) Schwant. (the fifth and last species dealt with by Haworth) which was published in the Philosophical Magazine and Journal, vol. 64: 428, in Dec. 1824. He saw flowering material in the Royal Gardens at Kew, and gives the size of the old tuberous root, above the ground, as being that of a medium-sized apple, and notes in the course of his further description of the vegetative parts that the leaves, "under a lens are villosulous, their apices being multiradiated." So far his account is a good description of these doubtfully named collections. But all he "observed" of the flowers was: "Flowers ante meridiani mediocres hilariter rubicundi, sed nondum dissectavi." The type of *T. bulbosum* is therefore insufficiently known. In their floral structure these collections are in almost complete agreement with *T. concinnum*, and they may be regarded as constituting a variety of this species, distinguished by the differently shaped tubers, shorter and rather thicker leaves, and the papillae on the leaves being setiferous, the characteristic that Haworth might have referred to when he described the leaves as "villosulous". For they differ from the plant described and figured in 1837 by Salm Dyck (Mesemb.: § 52: 3) as representing *M. bulbosum* Haw., which has

the "peduncles subpapillose, calyx papillose, papillae furnished with minute hairs, calyx-segments equal minute, petals with a darker median line and clavate stigmas." No species of *Trichodiadema* hitherto recorded fully answers to this description and it seems wisest to leave the solution of the problem to a future monographer and a more intensive collecting of this genus.

Ruschia fourcadei L. Bol. forma *luxurians*.

CAPE PROVINCE: in dit. Ladismith; Huis River Pass, "1—2 ft. high, bushy, numerous on rocky slopes," Dec. 1962, *H. Hall* 2589. Apex of the stem 1 cm. in diameter, the leaves up to 1·5 cm. long.

The type of this species was collected by H. G. Fourcade in the Uniondale Division at Toverwater's Poort, 2,050 ft., in Dec. 1928. In Jan. 1933 he made a second collection in the Humansdorp Division on the south slopes of Slypsteen Berg, N. of Warm Baths, 3,200 ft. No collection east of this has since been recorded and the Huis River Pass is the western limit known of its distribution. Between these limits an earlier collection was made by H. Hall in the Prince Albert Division at Meiring's Poort in June 1953.

This flowered at Kirstenbosch in Jan. 1954, but I failed to recognize its identity with ***R. fourcadei***, and it was described as a new species named ***R. heteropetala*** L. Bol. (*Mesemb.* III: 277), which must now be sunk in ***R. fourcadei***.

The locality of ***R. globularis*** L. Bol. (*Mesemb.* II: 413), collected by J. Lückhoff in Aug. 1933, is uncertain, but probably is also Meiring's Poort. I now regard this species, with its globular or subglobular leaves and spinescent branches as merely an extremely drought-stricken form of ***R. fourcadei*** which must also be sunk.

NOTE.—The type specimens of all new species described in this paper are in the Bolus Herbarium, University of Cape Town, Rondebosch.

(To be continued.)